

CLAIMS:

- Sub A17
- 0914092.082101
1. An optical head for scanning an optical record carrier having an information layer, the head comprising a radiation source for generating a radiation beam, an optical system for converging the radiation beam to a focus on the information layer, the optical system imparting a temperature-dependent first wavefront deviation to the radiation beam, and a compensator arranged in the radiation beam for compensating the first wavefront deviation, characterised in that the compensator comprises a phase structure of a material having temperature-dependent properties, the phase structure having the form of annular areas forming a non-periodic pattern of optical paths of different, temperature-dependent lengths, the optical paths forming a second wavefront deviation compensating the temperature-dependent first wavefront deviation.
2. Optical head according to Claim 1, wherein the optical system comprises an objective system imparting spherical aberration as the first wavefront deviation to the radiation beam.
3. Optical head according to Claim 1, wherein the optical system comprises a collimator lens and an objective lens, the collimator lens being arranged closer to the radiation source than the objective lens, the objective lens imparting defocus as the first wavefront aberration to the radiation beam.
4. Optical head according to Claim 1, wherein the differences between the optical paths are multiples of the wavelength of the radiation beam for at least one temperature.
5. Optical head according to Claim 4, wherein at least one of the multiples is equal to two or larger.
6. Optical head according to Claim 1, wherein the temperature-dependence of the first wavefront deviation is due to the temperature dependence of the wavelength of the radiation beam generated by the radiation source.

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cont
7. A device for scanning an optical record carrier having an information layer, the device comprising an optical head according to Claim 1 and an information processing unit for error correction.
8. An optical system comprising an optical element and a compensator, the optical element being arranged in the path of a radiation beam and imparting a temperature-dependent first wavefront deviation to the radiation beam, the compensator being arranged in the path of the radiation beam for compensating the first wavefront deviation, characterised in that the compensator comprises a phase structure of a material having temperature-dependent properties, the phase structure having the form of annular areas forming a non-periodic pattern of optical paths of different, temperature-dependent lengths, the optical paths forming a second wavefront deviation compensating the temperature-dependent first wavefront deviation.
9. Optical system according to Claim 8, wherein the differences between the optical paths are multiples of the wavelength of the radiation beam for at least one temperature.
10. Optical system according to Claim 8, wherein the first wavefront deviation is spherical aberration.
11. Optical system according to Claim 8, wherein the first wavefront deviation is defocus.
12. Optical system according to Claim 8, wherein the optical element is a lens.
13. Optical system according to Claim 8, wherein the optical element and the compensator are integrated in a single element.
14. Optical system according to Claim 8, including a diffractive structure.

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